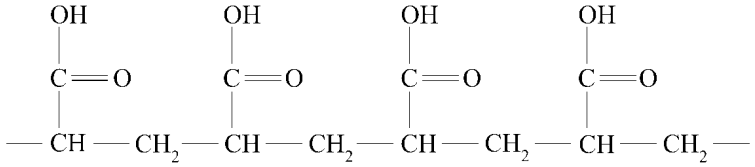
Year 12 Chemistry Polymers Assignment NAME_____

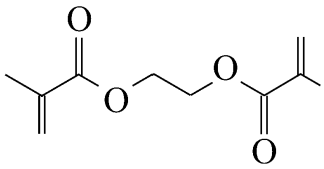
1. Discuss the advantages and disadvantages of synthetic polymers. /4

2. Consider the polymer below:



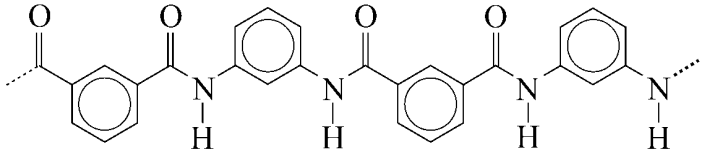
(a) Name the type of polymerisation reaction involved in the formation of the polymer. /1
(b) Draw the structural formula of the monomer used to form the polymer. /2

3. Consider the monomer below:



(a) State the structural feature of this molecule that allows it to undergo addition polymerisation. /1
(b) The polymer formed from this monomer is able to form cross links.
(i) State one property of the polymer that changes as a result of the formation of cross links. /1
(ii) Explain how cross-linking causes this property to change. /2

4. Consider the polymer below:



(a) Name the type of polymerisation reaction involved in the formation of the polymer. /1
(b) Circle the repeating unit. /1
(c) Draw the structural formulae of the monomers from which the polymer is made. /4
(d) State whether the polymer is a polyester or a polyamide. State one reason for your answer. /2
(e) State one advantage and one disadvantage of using fillers in polymers. /2

5. Compare the structure and properties of the following types of forces between polymer chains:
(i) Dispersion forces (ii) Hydrogen bonding (iii) Covalent bonding /6

6. Describe the effects of heating on thermoplastic and thermoset polymers, and the consequent difference in ease of recycling. /4

TOTAL /31